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(54) MRI patient lift

(57) A medical scanning apparatus 4 e.g. for MRI, comprises a housing 1, including an aperture 2, into which a patient is introduced for scanning. A platform 3 is arranged to be moveable into or out of the aperture, and it is arranged also to be moveable between a first relatively low position, at one side of the longitudinal axis of the aperture, to a second relatively high position where it is aligned with the aperture, so as to facilitate its introduction therein. The platform 3 is connected to an arm 4 which rotates about an axis 5 parallel to and below the aperture axis. Markings 7, 8, 9 increase the apparent size of the aperture, so as to reduce patient anxiety.

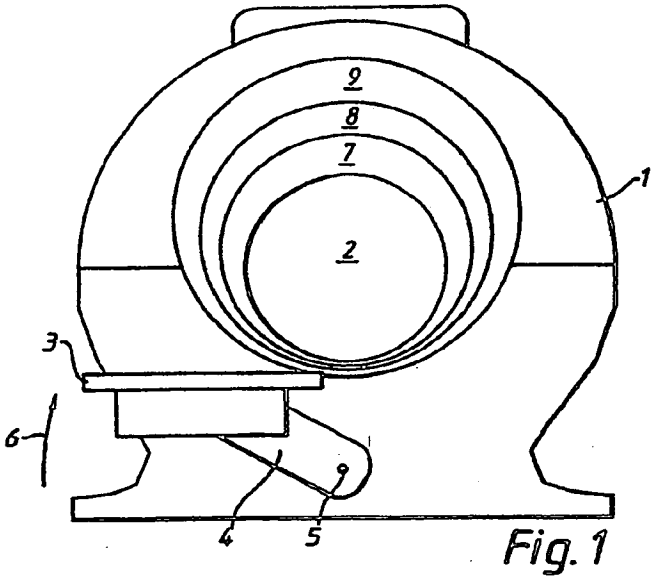

Fig. 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

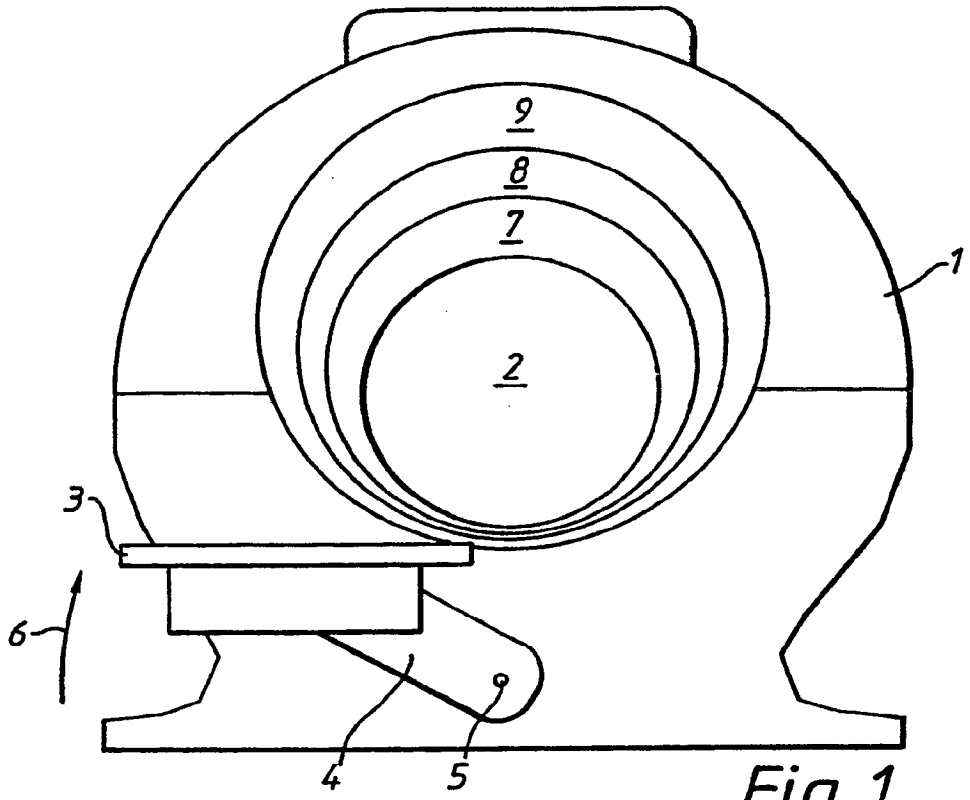

Fig. 1

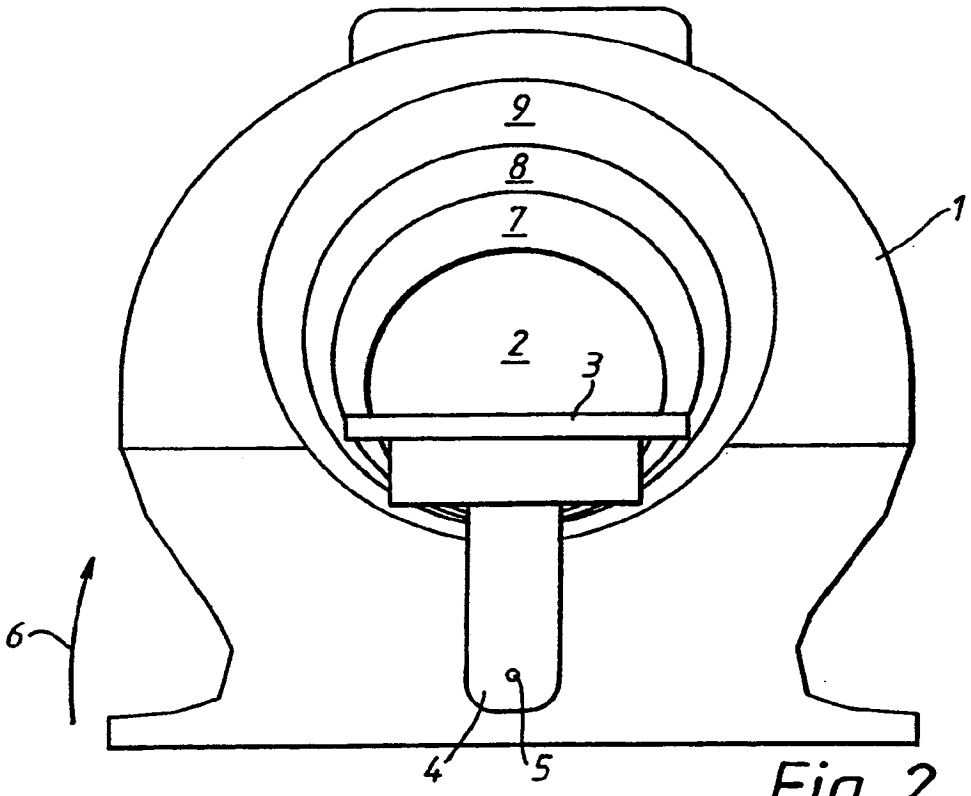

Fig. 2

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IMPROVEMENTS IN OR RELATING TO MEDICAL SCANNING APPARATUS

This invention relates to medical scanning apparatus and more especially it relates to magnetic resonance imaging (MRI) scanners.

Such apparatus comprises a housing for a magnet and associated scanning apparatus, which housing includes a generally cylindrical aperture into which a patient is introduced so that scanning procedures can be carried out.

In order to effect introduction of a patient into the aperture, a generally horizontally disposed platform is provided which can be moved into or out of the aperture, on which platform a patient is positioned.

MRI apparatus is well known and for the purposes of the present invention further detailed explanation of its construction and the principles of MRI are believed to be unnecessary. One of the problems associated with the use of MRI apparatus is that the generally cylindrical aperture into which patients are introduced is of necessity some distance above the surrounding floor level and thus the platform, which must be axially aligned with the aperture, so that a patient can be introduced therein, is inconveniently positioned in that a patient must be lifted onto the platform or must climb onto it, perhaps with the aid of steps or the like.

An additional problem with MRI apparatus is that some patients experience feelings of claustrophobia, not only when

actually inside the aperture but also when confronted by the aperture and the prospect of being introduced into it.

It is an object of the present invention to obviate at least in part the foregoing problems.

According to the present invention medical scanning apparatus comprises a housing including an aperture into which a patient is introduced for scanning purposes, a platform which is arranged to be moveable into or out of the aperture, and on which in use of the apparatus a patient is positioned, the platform being arranged to be moveable between a first relatively low position, arranged to one side of the longitudinal axis of the aperture to a second relatively high position where at the platform is substantially aligned with the longitudinal axis of the aperture, so as to facilitate introduction of the platform into the aperture.

By arranging that the platform is conveniently positioned when it is in the first relatively low position so that the patient can easily reach the upper surface to lie thereon, and by arranging that in this position the patient is not directly confronted by the aperture into which he or she will shortly be introduced, the two problems just before outlined are both obviated, at least in part. The platform may be supported on an arm, which arm is constrained to rotate through a predetermined angle, for the purpose of moving the platform from the said first position to the said second position.

The platform may adopt any other position suitable for, for example, surgery or other practices while the patient is on the

platform, or to enable easier routine maintenance/servicing of the apparatus.

The arm may be arranged to rotate about an axis which is parallel with the longitudinal axis of the aperture and arranged below it.

The arm may have operatively associated with it a mechanism which maintains the platform in a horizontal position as the arm is moved between the said first and the said second position.

The housing surrounding the aperture may be shaded or otherwise marked so as to produce a visual perspective effect which makes the aperture appear larger than it actually is when viewed from the platform end, whereby feelings of claustrophobia are additionally reduced.

One embodiment of the invention will now be described by way of example only with reference to the accompanying drawing, wherein;

FIGURE 1 is a front view of MRI apparatus showing a platform supporting a patient in a relatively low position and wherein;

FIGURE 2 is a front view of the apparatus shown in Figure 1 showing the platform in a relatively high position.

Referring now to the drawings, wherein corresponding parts of Figure 1 and Figure 2 bear the same numerical designations, MRI scanning apparatus comprises a housing 1 for a cryogenic magnet and its associated scanning apparatus. The housing includes a generally cylindrical aperture 2 into which a patient is

introduced so that scanning procedures can be carried out. In order to support a patient, a platform 3 is provided which is mounted on a crank arm 4 which is rotatable about an axis 5. The axis 5 is positioned below and substantially parallel with the longitudinal axis of the aperture 2.

The platform 3 is arranged to move as the crank arm is rotated in the direction of an arrow 6, between a first relatively low position as shown in Figure 1 to a second relatively higher positioned as shown in Figure 2. As can be seen from the drawing, in the first relatively low position, a patient can easily mount and lie on the platform 3, the platform being positioned so that during this procedure he or she is not directly confronted by the generally cylindrical aperture 2 and thus the prospect of being introduced into the aperture is less likely to cause claustrophobic effects. The crank arm 4 when rotated in the direction of the arrow 6 has the effect of moving the platform 3 to a second relatively higher position as shown in Figure 2, whereat the platform is suitably positioned for movement along the longitudinal axis of the aperture 2 so that a patient can be suitably positioned within the aperture 2 whereby scanning procedures can thereafter be carried out.

In order to minimise possible claustrophobic feelings when a patient is initially confronted by the MRI apparatus, shaded areas 7, 8 and 9 are painted or otherwise applied to the housing 1, which shaded areas have the effect of making the aperture 2 look larger so that feelings of claustrophobia tend to be reduced.

As will be readily appreciated by persons skilled in the art of mechanical engineering, any suitable drive and coupling mechanism may be used to rotate the crank arm 5 between the two positions so that the platform 3 is constrained to remain in a horizontal position and any suitable drive arrangement may be used to advance the platform into the aperture 2 so that the patient is suitably positioned for scanning procedures to be carried out.

Various modifications may be made to the arrangements shown without departing from the scope of the invention and for example it will be understood that the position and axis of the crank arm 4 may be arranged differently to that shown in the drawing whilst still achieving the beneficial effects of the invention. Furthermore, the platform may be moveable to other positions, suitable for example, surgery or other practices while the patient is on the platform, or to enable easier routine maintenance/servicing of the apparatus.

CLAIMS

1. Medical scanning apparatus comprising a housing including an aperture into which a patient is introduced for scanning purposes, a platform which is arranged to be moveable into or out of the aperture, and on which in use of the apparatus a patient is positioned, the platform being arranged to be moveable between a first relatively low position, arranged to one side of the longitudinal axis of the aperture to a second relatively high position where at the platform is substantially aligned with the longitudinal axis of the aperture, so as to facilitate introduction of the platform into the aperture.

2. Medical scanning apparatus as claimed in claim 1, wherein the platform is supported on an arm, which arm is constrained to rotate through a predetermined angle, for the purpose of moving the platform from the said first position to the said second position.

3. Medical scanning apparatus as claimed in claim 1 or claim 2, wherein the platform is moveable to positions other than said first and second positions.

4. Medical scanning apparatus as claimed in claim 1, claim 2 or claim 3, wherein the arm is arranged to rotate about an axis which is parallel with the longitudinal axis of the aperture and positioned below it.

5. Medical scanning apparatus as claimed in any preceding claim, wherein the arm is operatively associated with it a mechanism which maintains the platform in a horizontal position as it is moved between the said first and the said second position.

6. Medical scanning apparatus as claimed in any preceding claim, wherein the housing surrounding the aperture is shaded or otherwise marked so as to produce a visual perspective effect which makes the aperture appear larger than it actually is when viewed from the platform end.

7. Medical scanning apparatus as claimed in claim 1 and substantially as hereinbefore described with reference to the accompanying drawings.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
(The Search report) - 8 -

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Relevant Technical Fields

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(ii) Int Cl (Ed.5) A61B (5/055, 6/04), A61G (7/005, 7/008, 7/012) G01R (33/28)

Search Examiner
K SYLVAN

Date of completion of Search
22 APRIL 1994

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Documents considered relevant following a search in respect of Claims :-
1-7

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
A	GB 2151120 A	(YOKOGAWA)	
X	US 4885998	(US PHILIPS) See Figure 1	1,3,5

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).